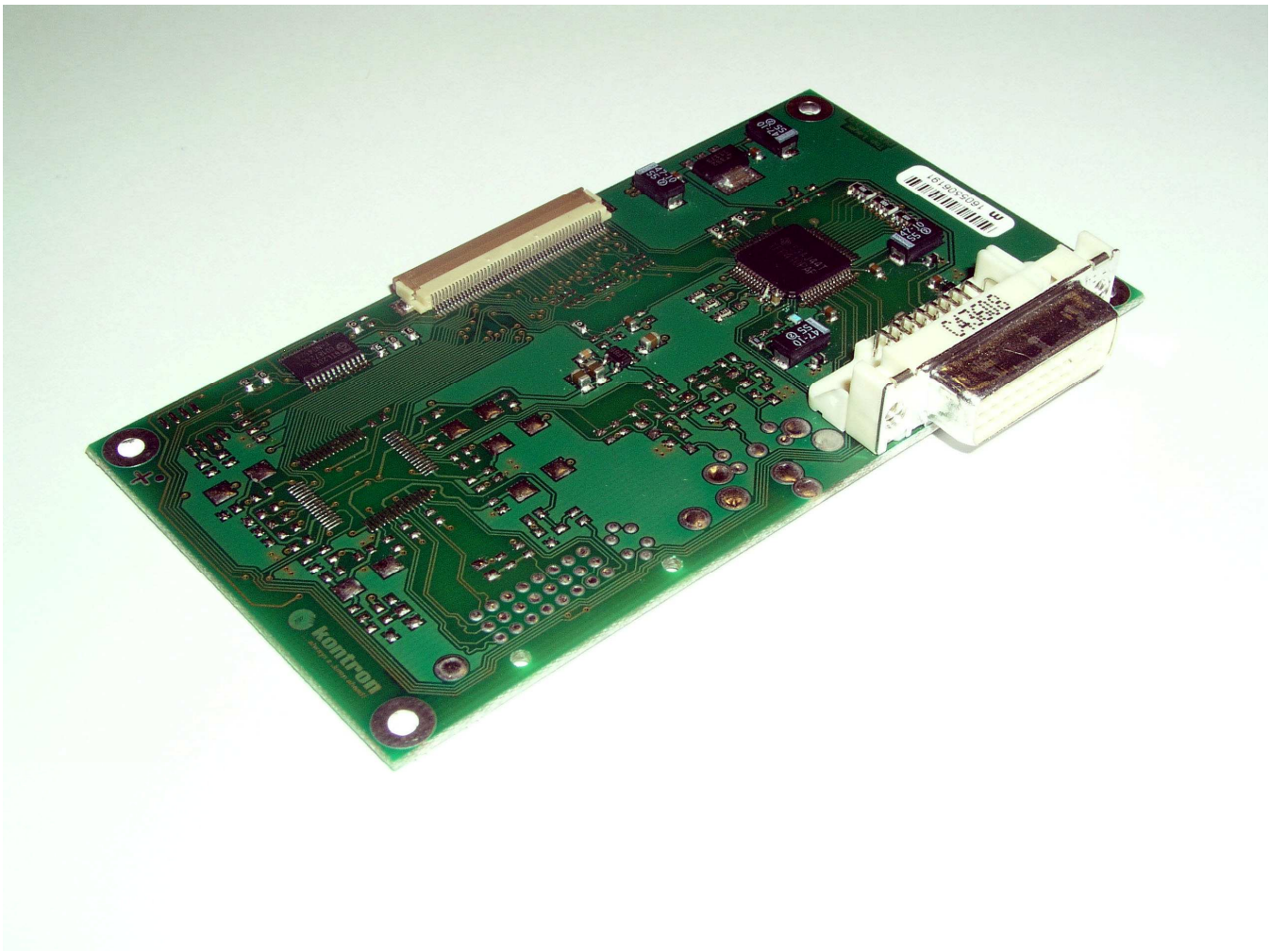

ETX Feature Connector Adaptor
ADA-ETX FC User’s Guide

Document Revision 1.1

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1. USER INFORMATION

1.1 About This Manual

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1.4 Standards

Kontron Embedded Modules is certified to ISO 9000 standards.

1.5 Warranty

This Kontron Embedded Modules product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period, Kontron Embedded Modules will at its discretion decide to repair or replace defective products.

Within the warranty period, the repair of products is free of charge as long as warranty conditions are observed.

The warranty does not apply to defects resulting from improper or inadequate maintenance or handling by the buyer, unauthorized modification or misuse, operation outside of the product's environmental specifications or improper installation or maintenance.

Kontron Embedded Modules will not be responsible for any defects or damages to other products not supplied by Kontron Embedded Modules that are caused by a faulty Kontron Embedded Modules product.

Technical Support

Technicians and engineers from Kontron Embedded Modules and/or its subsidiaries are available for technical support. We are committed to making our product easy to use and will help you use our products in your systems.

Before contacting Kontron Embedded Modules technical support, please consult our Web site at http://www.kontron-em.com/index-en.html for the latest product documentation, utilities, and drivers. If the information does not help solve the problem, contact us by telephone.

Asia	Europe	North/South America
Kontron Asia	Kontron Embedded Modules	Kontron America

5F-1, 341, Sec 4 Chung Hsiao E. Road Taipei, Taiwan	Brunnwiesenstr. 16 94469 Deggendorf – Germany	3988 Trust Way Hayward, CA 94545
Tel: +886 2 2751 7192	Tel: +49 (0) 991-37024-0	Tel: +1 (510)-732-6900
Fax: +886 2 2772 0314	Fax: +49 (0) 991-37024-109	Fax: +1 (510)-732-7655

2. INTRODUCTIONS

2.1 ADA-ETX FC3

The ADA-ETX FC3 is a small adaptor board to convert the signals from DVO to DVI. The DVO signals are available on Kontron boards which has implemented the “feature connector”´.

The ADA-ETX FC3 is supported by the following Board:

ETX PM

3. SPECIFICATION

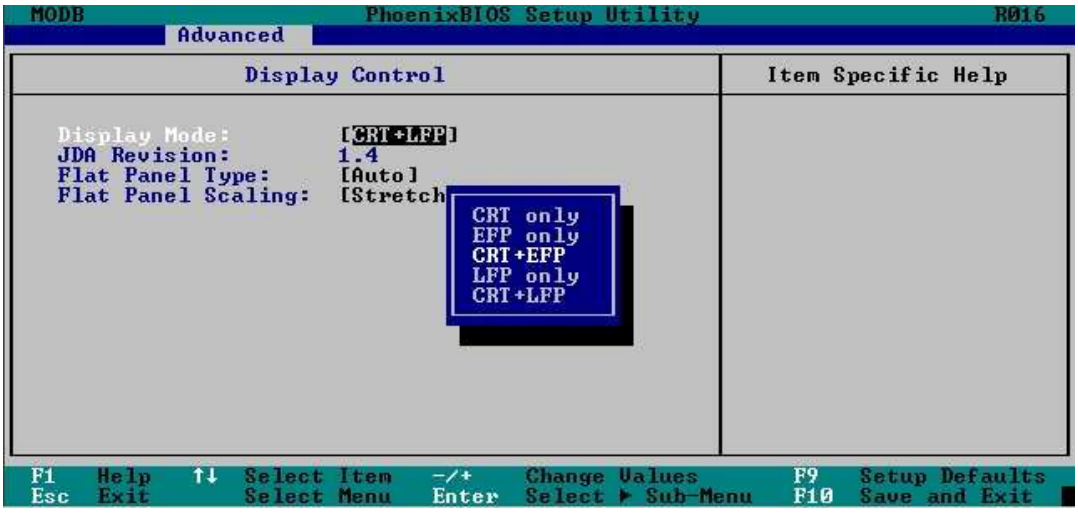
3.1 *ADA-ETX FC3 with Texas Instruments TFP410*

- The ADA-ETX FC3 supports DVI resolutions from VGA to SXGA@60Hz

- Programmable by Using the I2C Serial Interface

- To activate the ADA-ETX FC3 please enable in the Phoenix Bios Setup:

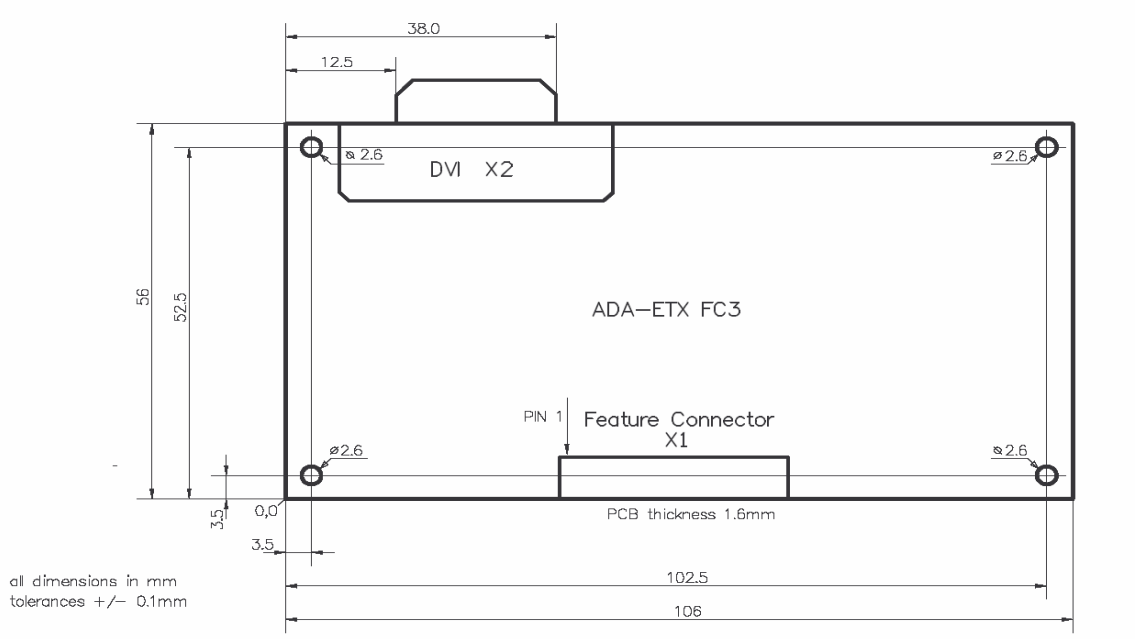
  -> **Advanced** -> **Display Control** : **EFP Only** or **CRT+EFP**



3.2 *Mechanical Specifications*

3.2.1. Dimensions

- 63.0 mm x 106.0 mm (2.2” x 4.17”)
- Height (total) approx. 15 mm(0.6”)



3.3 *Electrical Specifications*

3.3.1. Supply Voltage

- 5V DC +/- 5%
- 5V rise time from <10% to nominal within 0.1 ms to 20 ms

3.3.2. Supply Voltage Ripple

- Maximum 100 mV peak to peak 0 – 20 MHz

3.3.3. Supply Current

Power-consumption tests were executed during different applications conducted.

3.4 *Environmental Specifications*

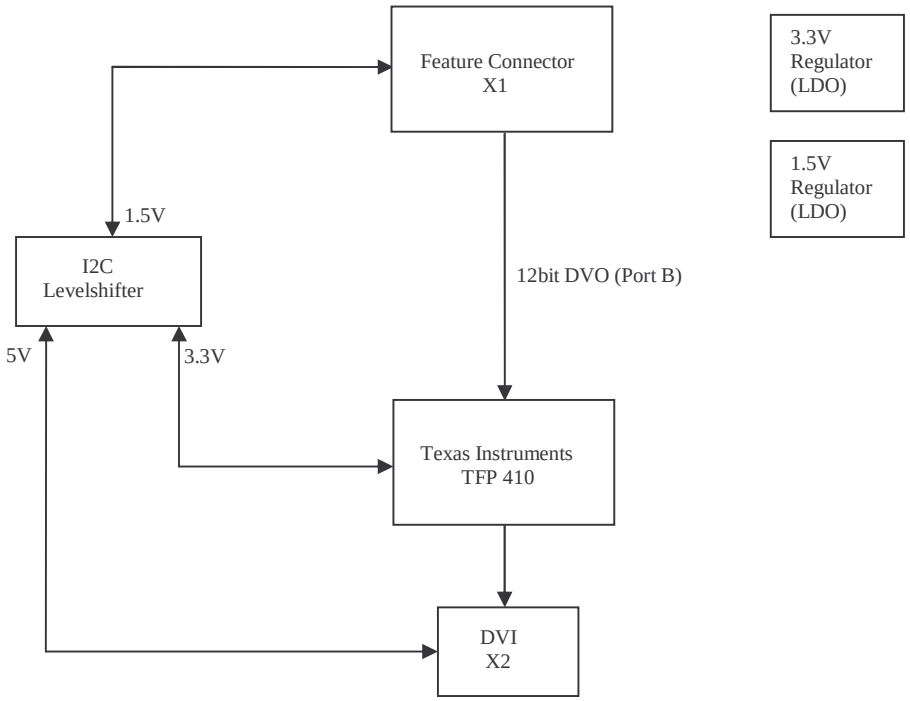
3.4.1. Temperature

- Operating:
  - Ambient temperature: 0 to +60 °C
- Non-operating: -40 to +85 °C

3.4.2. Humidity

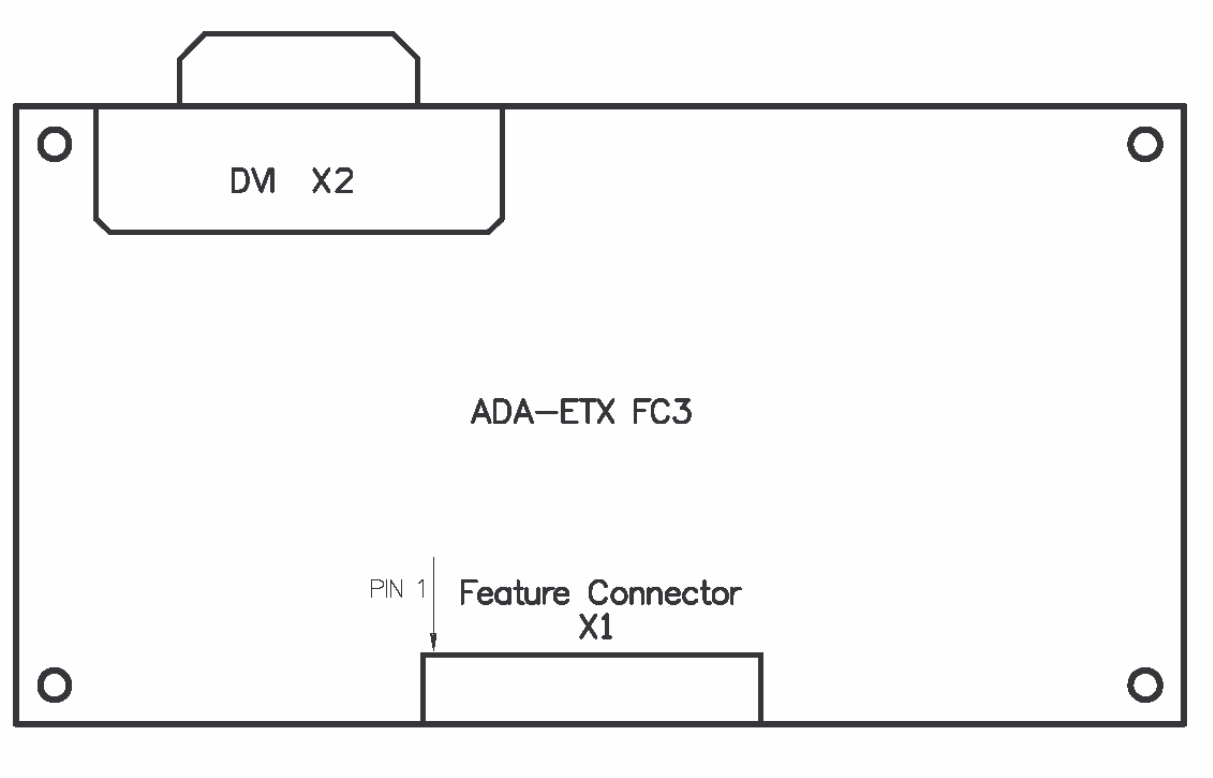
- Operating: 10% to 90% (non condensing)
- Non operating: 5% to 95% (non condensing)

4. APPENDIX A: BLOCK DIAGRAM



5. APPENDIX B: CONNECTOR PINNOUT

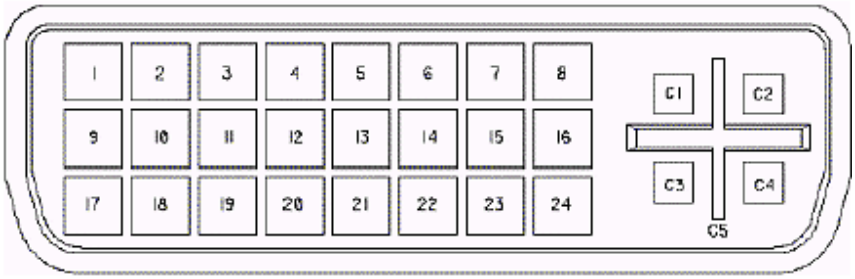
5.1 Connector Locations



5.2 Feature Connector X1 Pinout ADA-ETX FC3

Pin	Pin on ETX-PM	Description	
1	DVOC_D0	DVOC Data D0	not used
2	DVOB_D0	DVOB Data D0	
3	DVOC_D1	DVOC Data D1	not used
4	VCC	Supply +5V	
5	DVOB_D1	DVOB Data D1	
6	DVOC_D2	DVOC Data D2	not used
7	DVOB_D2	DVOB Data D2	
8	VCC	Supply +5V	
9	DVOC_D3	DVOC Data D3	not used
10	DVOB_D3	DVOB Data D3	
11	DVOC_D4	DVOC Data D4	not used
12	GND	Ground	
13	DVOB_D4	DVOB Data D4	
14	DVOC_D5	DVOC Data D5	not used
15	DVOB_D5	DVOB Data D5	
16	GND	Ground	
17	DVOC_D6	DVOC Data D6	not used
18	DVOB_D6	DVOB Data D6	
19	DVOC_D7	DVOC Data D7	not used
20	GND	Ground	
21	DVOB_D7	DVOB Data D7	
22	DVOC_D8	DVOC Data D8	not used
23	DVOB_D8	DVOB Data D8	
24	GND	Ground	
25	DVOC_D9	DVOC Data D9	not used
26	DVOB_D9	DVOB Data D9	
27	DVOC_D10	DVOC Data D10	not used
28	GND	Ground	
29	DVOB_D10	DVOB Data D10	
30	DVOC_D11	DVOC Data D11	not used
31	DVOB_D11	DVOB Data D11	
32	GND	Ground	
33	DVOB_CLK	Differential DVO Clock Output	
34	DVOB_CLK#	Differential DVO Clock Output	
35	GND	Ground	
36	DVOC_CLK	Differential DVO Clock Output	not used
37	DVOC_CLK#	Differential DVO Clock Output	not used
38	GND	Ground	
39	DVOB_VSYNC	VSYNC signal for the DVOB interface	
40	DVOB_HSYNC	HSYNC signal for the DVOB interface	
41	DVOB_BLANK#	Flicker Blank or Border Period Indication for DVOB	
42	NC	Not supported now.	
43	DVOC_VSYNC	VSYNC signal for the DVOC interface	not used
44	DVOC_HSYNC	HSYNC signal for the DVOC interface	not used
45	DVOC_BLANK#	Flicker Blank or Border Period Indication for DVOC	not used
46	DVOC_FLDSTL	TV Field and Flat Panel Stall Signal for DVOC	not used
47	NC	Not supported now.	
48	MI2CDATA	DVO I2C Clock	
49	MI2CCLK	DVO I2C Data	
50	GVREF	Input buffer VREF	

5.3 DVI Connector X2 Pinout on ADA-ETX FC3



Pin	Name	Pin	Name
1	TMDS Data2-	13	Not connected
2	TMDS Data2+	14	+5 V Power
3	GND	15	GND
4	Not connected	16	Hot Plug Detect
5	Not connected	17	TMDS Data0-
6	DDC Clock [SCL]	18	TMDSData0+
7	DDC Data [SDA]	19	GND
8	Not connected	20	Not connected
9	TMDS Data1-	21	Not connected
10	TMDS Data1+	22	GND
11	GND	23	TMDS Clock +
12	Not connected	24	TMDS Clock -
C1	Not connected		
C2	Not connected		
C3	Not connected		
C4	Not connected		
C5	GND		

Legend:

DDC = Display Data Channel

T.M.D.S. = Transition Minimized Differential Signal

Please refer to following link for detailed information about DVI specification: http://www.ddwg.org

On VCC pins: To protect the external powerlines of peripheral devices the customer has to take care about:
that the wires have the right diameter to withstand the maximum available current
that the enclosure of the peripheral device fulfils the fire protecting requirements of IEC/EN 60950.

6. APPENDIX C: DOCUMENT-REVISION HISTORY

Revision	Date	Edited by	Changes
0.1	02.11.04	HMA	Created preliminary manual.
0.2	03.07.05	TJO	Added new drawings
1.0	24.07.05	TJO	First public release
1.1	05.12.05	TJO	Layout reworked